



## Cold and Arid Regions Science Data Center

WATER: Dataset of ground truth measurements synchronizing with Envisat ASAR in the A'rou foci experimental areas on Mar. 15, 2008



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Abstract

The dataset of ground truth measurements synchronizing with Envisat ASAR was obtained in in No. 2 and 3 quadrates of the A'rou foci experimental areas on Mar. 15, 2008.

The Envisat ASAR data were in AP mode and VV/VH polarization combinations, and the overpass time was approximately at 11:35 BJT. The quadrates were divided into 4×4 subsites, with each one spanning a 30×30 m<sup>2</sup> plot. Only corner points of each subsite were chosen for observations.

In No. 2 quadrate, simultaneous with the satellite overpass, numerous ground data were collected, the soil temperature, soil volumetric moisture, the loss tangent, soil conductivity, and the real part and the imaginary part of soil complex permittivity by the POGO soil sensor, the mean soil temperature from 0-5cm by the probe thermometer, the surface radiative temperature measured three times by the hand-held infrared thermometer, soil gravimetric moisture, volumetric moisture, and soil bulk density after drying by the cutting ring (100cm<sup>3</sup>).

In No. 3 quadrate, simultaneous with the satellite overpass, numerous ground data were collected, the soil temperature, soil volumetric moisture, the loss tangent, soil conductivity, and the real part and the imaginary part of soil complex permittivity by the POGO soil sensor, soil volumetric moisture by ML2X, the mean soil temperature from 0-5cm by the probe thermometer, the surface radiative temperature measured three times by the hand-held infrared thermometer, soil gravimetric moisture, volumetric moisture, and soil bulk density after drying by the cutting ring (100cm<sup>3</sup>). Surface roughness was detailed in the "WATER: Surface roughness dataset in the A'rou foci experimental area". Besides, GPR (Ground Penetration Radar) observations were also carried out in No. 1 quadrate of A'rou. Those provide reliable ground data for retrieval and validation of soil moisture and freeze/thaw status from active remote sensing approaches.

Keywords

Theme: the surface radiative temperature, soil electrical conductivity, the dielectric constant, soil bulk density, the cutting ring, ASAR, ThetaProbe Soil Moisture Sensor – ML2x, the portable infrared thermometer, the probe thermometer, GPR, POGO portable soil sensor, the ground based synchronous observation, soil water content, the soil temperature,

Place: the Heihe River Basin, the cold region hydrology experimental area, A'rou foci experimental area,

Temporal: 2008-03-15,

Discipline:

Statrum:

ISO 19115 Category

Category: geoscientificInformation

Detail

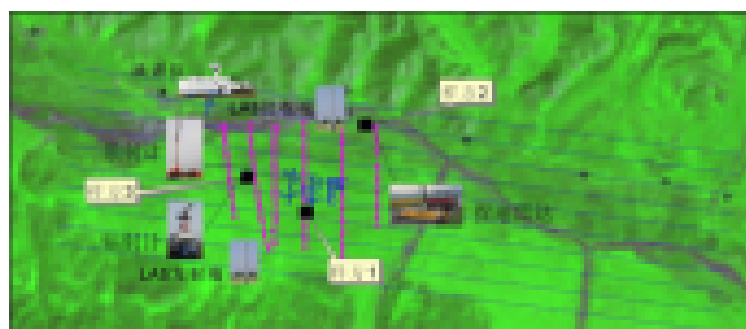
Project: +proj=longlat +datum=WGS84 +no\_defs

Data Volume(MB): 531.8

Data Format: 遥感影像,表格

Position and Thumbnail

N:38.078



W:100.411

E: 100.55

## Temporal Range

Start: 2008-03-15

End: 2008-03-15

## Citation

Jin Rui, Wang Weizhen, Patrick Klenk, Cao Yongpan, Gu Juan, Han Xujun, Li Zhe, Li Hua, Wu Yueru, Yu Meiyuan, Yuan Xiaolong, Zhao Jin. WATER: Dataset of ground truth measurements synchronizing with Envisat ASAR in the A'rou foci experimental areas on Mar. 15, 2008. Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences; Institute of Remote Sensing Applications, Chinese Academy of Sciences; Xinjiang Institute of Ecology and Geography, Chinese Academy of Sciences; Heidelberg University; Lanzhou University. 2008. doi:10.3972/water973.0006.db

## Recommended Publications

DOI

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## Funding

1. The CAS (Chinese Academy of Sciences) Action Plan for West Development Project : Watershed Airborne Telemetry Experimental Research (WATER)(No: KZCX2-XB2-09)
2. National Program on Key Basic Research Project (973 Program) : Theory and method for a synthetic retrieval of terrestrial ecological variables from both active and passive remote sensing approaches(No: 2007CB714400)

## Limitation

1. The dataset is generated from the "Watershed Airborne Telemetry Experimental Research (WATER) ", the user must have a clear statement in the article of the original data source and adopt the reference style providing by the metadata in the References section.

## Online Resources

1. WATER Website <http://water.westgis.ac.cn>
2. Environmental and Ecological Science Data Center for West China <http://westdc.westgis.ac.cn>
3. metadata link <http://westdc.westgis.ac.cn/data/274af501-7713-438a-a2f5-5bebc33f74f8>
4. WATER data report <http://westdc.westgis.ac.cn/doc/数据总体报告v1.pdf>

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